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Famodu, Omolayo O.  
Simmons, Carl R.

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Gly Arg Ser Gly Glu Glu Asp Cys Arg Ile Ala Leu Ser Thr Leu Tyr  
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Arg Leu Lys Glu Glu Glu Lys Lys Asn Lys Ala Ala Ala Ala Ser Gly  
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Gln Tyr Tyr Glu Asn Arg Leu Lys Ala Leu Asp Ser Leu Lys Ala Thr  
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 Leu Thr Leu Ser Gln Ala Met Glu Val Pro Ser Glu Ala Pro Ser Thr  
 1 5 10 15  
 Gly Ile Ala Ala Glu Thr Ile Ser Lys Asn Ala Leu Lys Arg Glu Leu  
 20 25 30  
 Lys Asn Lys Gln Lys Glu Glu Glu Arg Lys Arg Lys Glu Glu Asp Lys  
 35 40 45  
 Ala Lys Lys Ala Ala Glu Met Gln Lys Ala Lys Asp Asn Lys Ser Ala  
 50 55 60  
 Pro Ala Asp Glu Asp Asp Met Asp Pro Thr Gln Tyr Leu Glu Asn Arg  
 65 70 75 80  
 Leu Lys Tyr Leu Ala Val Gln Lys Ala Glu Gly Asn Asn Pro Tyr Pro  
 85 90 95

His Lys Phe Phe Val Thr Met Ser Leu Asp Gln Tyr Ile Lys Glu Tyr  
 100 105 110  
 Gly Gly Leu Ser Asn Gly Gln His Leu Glu Asp Val Ser Val Ser Met  
 115 120 125  
 Ala Gly Arg Ile Met His Lys Arg Thr Ser Gly Ser Lys Leu Val Phe  
 130 135 140  
 Tyr Asp Leu His Ser Gly Gly Phe Lys Val Gln Val Met Ala Asp Ala  
 145 150 155 160  
 Ser Lys Ser Asp Leu Asp Glu Ala Glu Phe Ser Lys Phe His Ser Asn  
 165 170 175  
 Val Lys Arg Gly Asp Ile Val Gly Ile Thr Gly Phe Pro Gly Lys Ser  
 180 185 190  
 Lys Lys Gly Glu Leu Ser Ile Phe Pro Lys Thr Phe Val Leu Leu Ser  
 195 200 205  
 His Cys Leu His Met Met Pro Arg Gln Lys Ser Ala Ala Ala Ala Asp  
 210 215 220  
 Asn Ala Asn Leu Lys Lys Asn Pro Trp Val Pro Gly Ser Thr Arg Asn  
 225 230 235 240  
 Pro Glu Thr Tyr Ile Leu Lys Asp Gln Glu Thr Arg Tyr Arg Arg His  
 245 250 255  
 Leu Asp Leu Met Leu Asn Pro Glu Val Arg Glu Ile Phe Lys Thr Arg  
 260 265 270  
 Ser Lys Ile Ile Cys Tyr Ile Arg Arg Phe Leu Asp Asp Leu Asp Phe  
 275 280 285  
 Leu Glu Val Glu Thr Pro Met Met Asn Met Ile Ala Gly Gly Ala Ala  
 290 295 300  
 Ala Arg Pro Phe Val Thr His His Asn Asp Leu Asn Met Arg Leu Phe  
 305 310 315 320  
 Met Arg Ile Ala Pro Glu Leu Tyr Leu Lys Glu Leu Val Val Gly Gly  
 325 330 335  
 Leu Asp Arg Val Tyr Glu Ile Gly Lys Gln Phe Arg Asn Glu Gly Ile  
 340 345 350  
 Asp Leu Thr His Asn Pro Glu Phe Thr Thr Cys Glu Phe Tyr Met Ala  
 355 360 365  
 Tyr Lys Asp Tyr Asn Asp Leu Met Asp Ile Thr Glu Gln Met Leu Ser  
 370 375 380  
 Gly Met Val Lys Glu Leu Thr Xaa Xaa Xaa Tyr Lys Ile Lys Tyr His  
 385 390 395 400  
 Ala Asp Gly Ile Asp Lys Glu Pro Ile Glu Ile Asp Phe Thr Pro Pro  
 405 410 415

Phe Arg Arg Ile Asp Met Ile Asp Glu Leu Glu Lys Val Ala Gly Leu  
 420 425 430  
 Ser Ile Pro Lys Asp Leu Ser Ser Glu Glu Ala Asn Gln Tyr Leu Lys  
 435 440 445  
 Asp Thr Cys Leu Lys Tyr Glu Ile Lys Cys Pro Pro Pro Glu Thr Thr  
 450 455 460  
 Ala Arg Leu Leu Asp Lys Leu Val Gly His Phe Leu Glu Glu Thr Cys  
 465 470 475 480  
 Val Asn Pro Thr Phe Ile Ile Asn His Pro Glu Ile Met Ser Pro Leu  
 485 490 495  
 Ala Lys Trp His Arg Ser Lys Arg Gly Leu Thr Glu Arg Phe Glu Leu  
 500 505 510  
 Phe Val Asn Lys His Glu Leu Cys Asn Ala Tyr Thr Glu Leu Asn Asp  
 515 520 525  
 Pro Val Val Gln Arg Gln Arg Phe Ala Glu Gln Leu Lys Asp Arg Gln  
 530 535 540  
 Ser Gly Asp Asp Glu Ala Met Ala Phe Asp Glu Thr Phe Cys Thr Ala  
 545 550 555 560  
 Leu Glu Tyr Gly Leu Pro Pro Thr Gly Gly Trp Gly Leu Gly Ile Asp  
 565 570 575  
 Arg Leu Thr Met Leu Leu Thr Asp Ser Gln Asn Ile Lys Glu Val Leu  
 580 585 590  
 Leu Phe Pro Ala Met Lys Pro  
 595

<210> 15  
 <211> 702  
 <212> DNA  
 <213> Triticum aestivum

<400> 15  
 gcacgaggct tgacaagcta gtgggccatt tcttggagga aacatgtgtg aaccaacat 60  
 ttattatcaa ccacccagag ataatgagtc cattggcaaa gtggcatagg tcccgacctg 120  
 ggttgacaga aaggtttgag ctctttgtta acaaacacga ggtgtgcaat gcctacactg 180  
 agttgaacga tcctgttgtg caaaggcaac ggtttgagga acaactaaag gatcgtcaat 240  
 ctggtgatga tgaagctatg gctttggacg aaacattctg cactgccctc gagtatgggc 300  
 tgcctccgac aggtgggttg ggtttgggaa ttgatcgctt tacaatgatg ctgacagatt 360  
 cccagaacat caaggaagtt ctcttgttcc cggccatgaa gccccaagag tagctgtttg 420  
 caagcccatc aacagagtaa ttttgttttg ctgcgctgag gttggaggat tatgacatgt 480  
 gacaatacaa cgagttttta ctgtgccgga caaaacatgt gtagcagcac tggaggtaca 540  
 agctactttt gcgtggaagg gttgttgaaa atttgaactc cggttaggag gaagagttag 600  
 gcatatgaag caagaatcag aaggagacag tgtgctacat gtttgcttgt tttctttttg 660  
 gaagatcaaa atttagtgct tggtattgtt atacactttt tt 702

<210> 16  
 <211> 136  
 <212> PRT  
 <213> Triticum aestivum

<400> 16

Thr Arg Leu Asp Lys Leu Val Gly His Phe Leu Glu Glu Thr Cys Val  
1 5 10 15

Asn Pro Thr Phe Ile Ile Asn His Pro Glu Ile Met Ser Pro Leu Ala  
20 25 30

Lys Trp His Arg Ser Arg Pro Gly Leu Thr Glu Arg Phe Glu Leu Phe  
35 40 45

Val Asn Lys His Glu Val Cys Asn Ala Tyr Thr Glu Leu Asn Asp Pro  
50 55 60

Val Val Gln Arg Gln Arg Phe Glu Glu Gln Leu Lys Asp Arg Gln Ser  
65 70 75 80

Gly Asp Asp Glu Ala Met Ala Leu Asp Glu Thr Phe Cys Thr Ala Leu  
85 90 95

Glu Tyr Gly Leu Pro Pro Thr Gly Gly Trp Gly Leu Gly Ile Asp Arg  
100 105 110

Leu Thr Met Met Leu Thr Asp Ser Gln Asn Ile Lys Glu Val Leu Leu  
115 120 125

Phe Pro Ala Met Lys Pro Gln Glu  
130 135

<210> 17

<211> 1430

<212> DNA

<213> Zea mays

<400> 17

cgaaccgctc	gctgctggct	cctccgcgcg	cgtgttcgcg	gcatggccac	gcttccaatg	60
gcgctctccc	ccgccgccat	ttcccccttc	accaccctcc	ccctctacta	ttcttcgcgt	120
cctcaccgcc	gcctcctcgc	ccgcttcttc	tccgtcgcgt	cggcaccggg	cggagcgaaa	180
gggcaccgac	cggcggcctc	cgccgttgag	gtgggcggcg	tcaagatcgc	gcgcgaggat	240
gttgtgaagg	aggatgatcc	gacaaacaac	gtgcccgcgc	atatcttttc	gaagatcggc	300
ctgcagctgc	acaggaggga	taaccatccc	cttgggattt	tgaagaacac	aatttatgat	360
tactttgaca	agaacttcac	tgggcagttt	gacaagtttg	atgacctttg	ccctcttggt	420
tctgtcaagc	agaattttga	tgatgtcttg	gtcccttctg	accatgtaag	ccggagttac	480
aacgacacat	attatggtga	tgggtcaaaca	gtcttaagggt	gtcataccag	tgctcatcaa	540
gctgagctgc	taaggcatgg	acatacacac	tttcttgtaa	ctggagatgt	ttaccgtagg	600
gattccattg	attcaactca	ctatcctgtc	ttccatcaga	tggaagggtt	ccgtgtcttc	660
tctcctgatg	aatggtcagg	gtctcgcgatg	ggtgggacag	catatgcagc	tgcaagaactc	720
aagaaaacac	tggaaggcct	ggcaagacat	ctatttggtg	ctgtagagat	gcgatggggt	780
gacacttact	tcccattttac	caaccatccc	tttgagctcg	aaatatactt	tcaggatgat	840
tgggttgagg	ttttgggggtg	tggagtcacc	gagcaggaaa	ttttgaaaag	aaatggcagg	900
agggaccatg	tggcatgggc	ctttggattg	ggcttgaggc	gccttgcaat	ggtccttttc	960
gacattccag	atattcgact	attctgggtcg	aatgataaac	ggttcacgtc	ccagttctca	1020
gaaggcaagc	ttggtgtcaa	gttcaagcca	ttttcaaagt	ttcctccttg	ttacaaggat	1080
atgagtttct	ggatcaatga	tgcattttaca	gaaaacaact	tatgtgaggt	tgctcagagga	1140
attgctgggtg	atcttggtga	ggaggtaaaa	cttattgata	atttcacgaa	caagaaaggc	1200
atgacgagcc	attgctatag	aatagcctat	aggctcgatgg	aacgctcgct	cacagacgag	1260
gagattaaca	atcttcagtt	gaatgtcagg	gaagctgtga	aagataaatt	ggaagtagag	1320
ttgagataga	agcagctagc	tatgcagtta	taccatgaac	taaattttgc	ctctctttat	1380
atgtaaatcc	atttaaaatg	atttttttgt	atctatcaag	aaaatgcacc		1430

<210> 18

<211> 442  
 <212> PRT  
 <213> Zea mays

<400> 18

Arg	Thr	Ala	Arg	Cys	Trp	Leu	Leu	Arg	Ala	Arg	Val	Arg	Gly	Met	Ala
1				5					10					15	
Thr	Leu	Pro	Met	Ala	Leu	Ser	Pro	Ala	Ala	Ile	Ser	Pro	Phe	Thr	Thr
			20					25					30		
Leu	Pro	Leu	Tyr	Tyr	Ser	Ser	Arg	Pro	His	Arg	Arg	Leu	Leu	Ala	Arg
		35					40					45			
Phe	Phe	Ser	Val	Ala	Ser	Ala	Pro	Gly	Gly	Ala	Lys	Gly	His	Arg	Pro
	50					55					60				
Ala	Ala	Ser	Ala	Val	Glu	Val	Gly	Gly	Val	Lys	Ile	Ala	Arg	Glu	Asp
	65				70					75					80
Val	Val	Lys	Glu	Asp	Asp	Pro	Thr	Asn	Asn	Val	Pro	Asp	Asn	Ile	Phe
				85					90					95	
Ser	Lys	Ile	Gly	Leu	Gln	Leu	His	Arg	Arg	Asp	Asn	His	Pro	Leu	Gly
			100					105					110		
Ile	Leu	Lys	Asn	Thr	Ile	Tyr	Asp	Tyr	Phe	Asp	Lys	Asn	Phe	Thr	Gly
		115					120					125			
Gln	Phe	Asp	Lys	Phe	Asp	Asp	Leu	Cys	Pro	Leu	Val	Ser	Val	Lys	Gln
	130					135					140				
Asn	Phe	Asp	Asp	Val	Leu	Val	Pro	Ser	Asp	His	Val	Ser	Arg	Ser	Tyr
	145				150					155					160
Asn	Asp	Thr	Tyr	Tyr	Val	Asp	Gly	Gln	Thr	Val	Leu	Arg	Cys	His	Thr
				165					170					175	
Ser	Ala	His	Gln	Ala	Glu	Leu	Leu	Arg	His	Gly	His	Thr	His	Phe	Leu
			180					185					190		
Val	Thr	Gly	Asp	Val	Tyr	Arg	Arg	Asp	Ser	Ile	Asp	Ser	Thr	His	Tyr
		195					200					205			
Pro	Val	Phe	His	Gln	Met	Glu	Gly	Phe	Arg	Val	Phe	Ser	Pro	Asp	Glu
	210					215					220				
Trp	Ser	Gly	Ser	Arg	Met	Gly	Gly	Thr	Ala	Tyr	Ala	Ala	Ala	Glu	Leu
	225				230					235					240
Lys	Lys	Thr	Leu	Glu	Gly	Leu	Ala	Arg	His	Leu	Phe	Gly	Ala	Val	Glu
				245					250					255	
Met	Arg	Trp	Val	Asp	Thr	Tyr	Phe	Pro	Phe	Thr	Asn	Pro	Ser	Phe	Glu
			260					265					270		
Leu	Glu	Ile	Tyr	Phe	Gln	Asp	Asp	Trp	Leu	Glu	Val	Leu	Gly	Cys	Gly
		275				280						285			
Val	Thr	Glu	Gln	Glu	Ile	Leu	Lys	Arg	Asn	Gly	Arg	Arg	Asp	His	Val



290	295	300
Ala Trp Ala Phe Gly Leu Gly Leu Glu Arg Leu Ala Met Val Leu Phe 305 310 315 320		
Asp Ile Pro Asp Ile Arg Leu Phe Trp Ser Asn Asp Lys Arg Phe Thr 325 330 335		
Ser Gln Phe Ser Glu Gly Lys Leu Gly Val Lys Phe Lys Pro Phe Ser 340 345 350		
Lys Phe Pro Pro Cys Tyr Lys Asp Met Ser Phe Trp Ile Asn Asp Ala 355 360 365		
Phe Thr Glu Asn Asn Leu Cys Glu Val Val Arg Gly Ile Ala Gly Asp 370 375 380		
Leu Val Glu Glu Val Lys Leu Ile Asp Asn Phe Thr Asn Lys Lys Gly 385 390 395 400		
Met Thr Ser His Cys Tyr Arg Ile Ala Tyr Arg Ser Met Glu Arg Ser 405 410 415		
Leu Thr Asp Glu Glu Ile Asn Asn Leu Gln Leu Asn Val Arg Glu Ala 420 425 430		
Val Lys Asp Lys Leu Glu Val Glu Leu Arg 435 440		

<210> 19  
 <211> 1000  
 <212> DNA  
 <213> Oryza sativa

<400> 19

gcacgagtgg	taccaacagc	atcctgctcg	ggattcacac	gatacatttt	ttcttgaagc	60
ccctgccgct	acaaaacaat	tgcttgaaga	ttatcttgag	aaagtaaagg	aagttcatca	120
acgtggtggt	tatggctcca	agggatatgg	ctatgactgg	aaacgggatg	aagcagagaa	180
aaacctgctt	cgtacccaca	ctacagcagt	ttcaacaagg	atgctataca	agctagcaca	240
agagaaacct	tttgccccta	agaggtacta	ctccattgat	cgtgttttcc	gcaatgaagc	300
tgtggaccgg	actcatcttg	cgaattcca	ccagattgaa	ggtctcattt	gtgattatgg	360
tttgacgctg	ggtgatctga	ttggtgtatt	ggaggatttc	ttctcgagtc	taggcatgtc	420
aaagctgcgt	ttcaagcctg	cctacaatcc	atacaccgag	ccgagcatgg	aaattttcag	480
ttaccatgaa	ggtttgaaga	aatgggtgga	agttggtaac	tctggcatgt	tcagacctga	540
aatgttactt	cccatgggac	tgccagaggg	tgttaatgtt	attgcatggg	gtctttcact	600
agaaaggcca	acaatgattc	tttacggcat	cgacaacatt	cgagacctct	ttggaccaaa	660
ggttgatttc	aacctcatca	agagcaaccc	tctctgccgc	ttgggactgc	agtaaaacct	720
tgcaaaagtt	ggttggaagt	gattaagtaa	caagatttgt	ttagttgatc	agtggttgaa	780
cgtgaagaga	tcatttctgg	cttaccttga	aacaccaata	catgtgcatt	tagcagaggt	840
ttttgtatta	cagttttgag	tgatatgaga	ctaccagcca	atttttgtgt	gtgtccatat	900
tcgaataactt	tgatacatth	taattgagca	catccaatgt	atgaagtggg	catctgccgc	960
tgcggttgct	tgaatcaaaa	aaaaaaaaaa	aaaaaaaaaa			1000

<210> 20  
 <211> 237  
 <212> PRT  
 <213> Oryza sativa

<400> 20  
 His Glu Trp Tyr Gln Gln His Pro Ala Arg Asp Ser His Asp Thr Phe



1	5	10	15												
Phe	Leu	Glu	Ala	Pro	Ala	Ala	Thr	Lys	Gln	Leu	Pro	Glu	Asp	Tyr	Leu
		20						25					30		
Glu	Lys	Val	Lys	Glu	Val	His	Gln	Arg	Gly	Gly	Tyr	Gly	Ser	Lys	Gly
		35					40					45			
Tyr	Gly	Tyr	Asp	Trp	Lys	Arg	Asp	Glu	Ala	Glu	Lys	Asn	Leu	Leu	Arg
	50					55					60				
Thr	His	Thr	Thr	Ala	Val	Ser	Thr	Arg	Met	Leu	Tyr	Lys	Leu	Ala	Gln
	65				70					75					80
Glu	Lys	Pro	Phe	Ala	Pro	Lys	Arg	Tyr	Tyr	Ser	Ile	Asp	Arg	Val	Phe
				85					90					95	
Arg	Asn	Glu	Ala	Val	Asp	Arg	Thr	His	Leu	Ala	Glu	Phe	His	Gln	Ile
			100					105					110		
Glu	Gly	Leu	Ile	Cys	Asp	Tyr	Gly	Leu	Thr	Leu	Gly	Asp	Leu	Ile	Gly
		115					120					125			
Val	Leu	Glu	Asp	Phe	Phe	Ser	Ser	Leu	Gly	Met	Ser	Lys	Leu	Arg	Phe
	130					135					140				
Lys	Pro	Ala	Tyr	Asn	Pro	Tyr	Thr	Glu	Pro	Ser	Met	Glu	Ile	Phe	Ser
	145				150					155					160
Tyr	His	Glu	Gly	Leu	Lys	Lys	Trp	Val	Glu	Val	Gly	Asn	Ser	Gly	Met
				165					170					175	
Phe	Arg	Pro	Glu	Met	Leu	Leu	Pro	Met	Gly	Leu	Pro	Glu	Gly	Val	Asn
			180					185					190		
Val	Ile	Ala	Trp	Gly	Leu	Ser	Leu	Glu	Arg	Pro	Thr	Met	Ile	Leu	Tyr
		195					200					205			
Gly	Ile	Asp	Asn	Ile	Arg	Asp	Leu	Phe	Gly	Pro	Lys	Val	Asp	Phe	Asn
	210					215					220				
Leu	Ile	Lys	Ser	Asn	Pro	Leu	Cys	Arg	Leu	Gly	Leu	Gln			
	225				230					235					

<210> 21  
 <211> 387  
 <212> DNA  
 <213> Glycine max

<220>  
 <221> unsure  
 <222> (337)  
 <223> n=a,c,g or t

<220>  
 <221> unsure  
 <222> (379)  
 <223> n=a,c,g or t

<400> 21

gattgccaat ggatcatgga aagaaaaatc attcaaattct ttgaatttag gaaaaggagt 60  
catgggtgtc cctccaaatg gtggccatct tcacacttta cttaaattgca gaactatgat 120  
gaaagaaatc ttcttggaat tgggatttga agaaatgcca accaacaatt acgttgaatc 180  
ttctttctgg aattttgata ctttatttca acctcaacaa catcctgctc gtgatgctca 240  
cgatactttc ttcctttctg aacctgcac tgccaaatcc attccacaag attatttaga 300  
aagagtgaaa acaatgcacg agaaaggagg gcacggntct attggttgga gatacgactg 360  
gagtggaaac tgagtccana aaaaaaa 387

<210> 22  
<211> 123  
<212> PRT  
<213> Glycine max

<400> 22  
Ile Ala Asn Gly Ser Trp Lys Glu Lys Ser Phe Lys Ser Leu Asn Leu  
1 5 10 15  
Gly Lys Gly Val Met Gly Val Pro Pro Asn Gly Gly His Leu His Thr  
20 25 30  
Leu Leu Lys Cys Arg Thr Met Met Lys Glu Ile Phe Leu Glu Met Gly  
35 40 45  
Phe Glu Glu Met Pro Thr Asn Asn Tyr Val Glu Ser Ser Phe Trp Asn  
50 55 60  
Phe Asp Thr Leu Phe Gln Pro Gln Gln His Pro Ala Arg Asp Ala His  
65 70 75 80  
Asp Thr Phe Phe Leu Ser Glu Pro Ala Ser Ala Lys Ser Ile Pro Gln  
85 90 95  
Asp Tyr Leu Glu Arg Val Lys Thr Met His Glu Lys Gly Gly His Gly  
100 105 110  
Ser Ile Gly Trp Arg Tyr Asp Trp Ser Gly Asn  
115 120

<210> 23  
<211> 1074  
<212> DNA  
<213> Triticum aestivum

<400> 23  
gcacgaggga caacctattg cgataggata tagccaaccg ttgttagagg tccgtgaggc 60  
aatccagaac atttttctcg agatgggggt cagtgagatg ccaacgaaca tgtatgtaga 120  
gagcagcttc tggaattttg atgcactgtt ccagccacaa cagcatcctg ctgctgattc 180  
acacgatacc tttttcctca aagcccctgc tacaacaaca caattacctg atgactatct 240  
tgagaaagta aagcaagtac atcagtctgg tggatcatgg tccaaaggat atgggttacga 300  
ttggaagcga gatgaagcag agaaaaacct gcttcgtact cacacaactg cagtttcaac 360  
aaggatgcta tacaagctag cacaggagaa aacttttgct cctaagagat actattctat 420  
tgatcgtgtt ttccggaatg aagctgtgga ccgaactcat cttgcagaat tccaccagat 480  
agaaggtctt atttgtgatt atggtttgac gcttggtgat ctgatagggtg tattggagga 540  
tttcttctcc agactaggca tgtcaaagct gcgtttcaaa cctgcctaca acccgtagac 600  
tgaaccaagc atggaaattt tcagctacca cgatgggtctg aagaaatggg tggaaatagg 660  
caactcaggc atgttcaggc cggaatgtt acttcccatg ggactgccag aggggtgttaa 720  
tggtatcgca tggggtcttt cgcttgaaag gccacaatg attctgtatg ggattgacaa 780  
catacgtgat ctctttgggc caaaggtcga cttcaatctg atcaagagca gcccgatttg 840  
ccgcttgggg ctgtagtgtg gtgagcttga tagaacttta tctggatgtc tggatgcgaa 900  
ggatgtttat ttgtggttat acctttgaaa accagtactt gtgcatttaa cagagggagt 960

gcagaaatac acacatgtag ctctgaattg caaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020  
 aataaaaaaaaa aaacaaaaaaaa aaaaaaaaaa tactcgaggg ggggccgtac caca 1074

<210> 24  
 <211> 284  
 <212> PRT  
 <213> Triticum aestivum

<400> 24

His Glu Gly Gln Pro Ile Ala Ile Gly Tyr Ser Gln Pro Leu Leu Glu  
 1 5 10 15

Val Arg Glu Ala Ile Gln Asn Ile Phe Leu Glu Met Gly Phe Ser Glu  
 20 25 30

Met Pro Thr Asn Met Tyr Val Glu Ser Ser Phe Trp Asn Phe Asp Ala  
 35 40 45

Leu Phe Gln Pro Gln Gln His Pro Ala Arg Asp Ser His Asp Thr Phe  
 50 55 60

Phe Leu Lys Ala Pro Ala Thr Thr Thr Gln Leu Pro Asp Asp Tyr Leu  
 65 70 75 80

Glu Lys Val Lys Gln Val His Gln Ser Gly Gly His Gly Ser Lys Gly  
 85 90 95

Tyr Gly Tyr Asp Trp Lys Arg Asp Glu Ala Glu Lys Asn Leu Leu Arg  
 100 105 110

Thr His Thr Thr Ala Val Ser Thr Arg Met Leu Tyr Lys Leu Ala Gln  
 115 120 125

Glu Lys Thr Phe Ala Pro Lys Arg Tyr Tyr Ser Ile Asp Arg Val Phe  
 130 135 140

Arg Asn Glu Ala Val Asp Arg Thr His Leu Ala Glu Phe His Gln Ile  
 145 150 155 160

Glu Gly Leu Ile Cys Asp Tyr Gly Leu Thr Leu Gly Asp Leu Ile Gly  
 165 170 175

Val Leu Glu Asp Phe Phe Ser Arg Leu Gly Met Ser Lys Leu Arg Phe  
 180 185 190

Lys Pro Ala Tyr Asn Pro Tyr Thr Glu Pro Ser Met Glu Ile Phe Ser  
 195 200 205

Tyr His Asp Gly Leu Lys Lys Trp Val Glu Ile Gly Asn Ser Gly Met  
 210 215 220

Phe Arg Pro Glu Met Leu Leu Pro Met Gly Leu Pro Glu Gly Val Asn  
 225 230 235 240

Val Ile Ala Trp Gly Leu Ser Leu Glu Arg Pro Thr Met Ile Leu Tyr  
 245 250 255

Gly Ile Asp Asn Ile Arg Asp Leu Phe Gly Pro Lys Val Asp Phe Asn  
 260 265 270

Leu Ile Lys Ser Ser Pro Ile Cys Arg Leu Gly Leu  
 275 280

<210> 25  
 <211> 1939  
 <212> DNA  
 <213> Zea mays

<400> 25  
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 ctctgactcg agtggccgct actctacccc acccacaccc ttccgcccgc cgccactaaa 120  
 ccctagcggg acacccgcct tgctcgcgcc gcctcatcct ctactcctc tcggaccccc 180  
 ggtggccggt gcagagctgc gcgaccgaga accgaatctg tgagccatgt cgaccaacaa 240  
 gggcagcgcg gccaaaggcg gcggaggga gaagaaggag gtgaagaagg agacgaagct 300  
 cgggatggcc tataagaagg acgacaactt cggggagtgg tactccgagg ttgttgtaa 360  
 cagtgaatg attgagtact atgacatttc tggttgttat atattgaggc catgggcgat 420  
 ggaaatctgg gagctactga aagaattctt tgatgcagaa attaaaaagc tgaagctcaa 480  
 accatattat ttccctttgt ttgttactga gaatgttcta cagaaggaaa aggaccacat 540  
 tgagggtctt gcacctgagg tagcttgggt tactaaatct gggaaatctg acctggaagc 600  
 accgattgca atccgcccc caagtgcgac tgtcatgtat ccgtacttct ccaaatggat 660  
 aagaagccac cgagacttac ccttgagggt taatcaatgg tgtaatgttg ttagatggga 720  
 gtttagcaat ccaactcctt tcataaggag ccgtgaattt ctgtggcaag aggggcatac 780  
 tgcttttgcg actaaagaag aggcagatga agagggttct caaatattgg aactgtaccg 840  
 aaggatatac gaagaatttt tagcagttcc agtttccaaa gggagaaaaa gcgagatgga 900  
 aaaatttgca ggtggccttt ataccaccag cgttgaggcc ttcatccaa aactggctcg 960  
 tggcatacaa ggcgcaacct cacactgtct tgggtcaaac tttgccaaga tgtttgatat 1020  
 cacttttgag aatgagaaag gtgttaggga aatgggttgg caaaactctt ggcctacac 1080  
 aaccgctcg attggagtga tggatgatgac acatgggtgat gacaaaggct tagtattacc 1140  
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 <211> 383  
 <212> PRT  
 <213> Zea mays

<400> 26  
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 Trp Cys Asn Val Val Arg Trp Glu Phe Ser Asn Pro Thr Pro Phe Ile  
 35 40 45  
 Arg Ser Arg Glu Phe Leu Trp Gln Glu Gly His Thr Ala Phe Ala Thr  
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Lys	Glu	Glu	Ala	Asp	Glu	Glu	Val	Leu	Gln	Ile	Leu	Glu	Leu	Tyr	Arg	
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Arg	Ile	Tyr	Glu	Glu	Phe	Leu	Ala	Val	Pro	Val	Ser	Lys	Gly	Arg	Lys	
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Ser	Glu	Met	Glu	Lys	Phe	Ala	Gly	Gly	Leu	Tyr	Thr	Thr	Ser	Val	Glu	
			100					105					110			
Ala	Phe	Ile	Pro	Asn	Thr	Gly	Arg	Gly	Ile	Gln	Gly	Ala	Thr	Ser	His	
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Cys	Leu	Gly	Gln	Asn	Phe	Ala	Lys	Met	Phe	Asp	Ile	Thr	Phe	Glu	Asn	
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Glu	Lys	Gly	Val	Arg	Glu	Met	Val	Trp	Gln	Asn	Ser	Trp	Ala	Tyr	Thr	
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Thr	Arg	Ser	Ile	Gly	Val	Met	Val	Met	Thr	His	Gly	Asp	Asp	Lys	Gly	
				165					170					175		
Leu	Val	Leu	Pro	Pro	Lys	Val	Ala	Pro	Ile	Gln	Val	Ile	Val	Ile	Ser	
			180					185					190			
Val	Pro	Tyr	Lys	Asp	Ala	Asp	Thr	Thr	Ala	Ile	Lys	Gly	Ala	Cys	Glu	
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Ser	Thr	Val	Tyr	Thr	Leu	Asp	Gln	Ser	Gly	Ile	Arg	Ala	Asp	Gln	Asp	
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Thr	Arg	Glu	Asn	Tyr	Ser	Pro	Gly	Trp	Lys	Tyr	Ser	His	Trp	Glu	Met	
225					230					235					240	
Lys	Gly	Val	Pro	Leu	Arg	Ile	Glu	Ile	Gly	Pro	Lys	Asp	Leu	Ala	Asn	
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Lys	Gln	Val	Arg	Val	Val	Arg	Arg	Asp	Asn	Gly	Ala	Lys	Val	Asp	Ile	
			260					265					270			
Pro	Val	Thr	Asn	Leu	Val	Glu	Glu	Val	Lys	Val	Leu	Leu	Asp	Glu	Ile	
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Gln	Lys	Asn	Leu	Phe	Lys	Thr	Ala	Gln	Glu	Lys	Arg	Asp	Ala	Cys	Val	
	290					295					300					
His	Val	Val	Asn	Thr	Trp	Asp	Glu	Phe	Thr	Thr	Ala	Leu	Asn	Asn	Lys	
305					310					315					320	
Lys	Leu	Ile	Leu	Ala	Pro	Trp	Cys	Asp	Glu	Glu	Glu	Ile	Glu	Lys	Asp	
				325					330					335		
Val	Lys	Thr	Arg	Thr	Lys	Gly	Glu	Leu	Gly	Ala	Ala	Lys	Thr	Leu	Cys	
			340					345					350			
Thr	Pro	Phe	Glu	Gln	Pro	Glu	Leu	Pro	Glu	Gly	Thr	Leu	Cys	Phe	Ala	
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tcaggagtcg cgagttttctt tggcaagaag ggcacactgc ttttgcaaca aaggatgaag 180
canatgcaga agttcttgag attctggaat tatataggcg tatatacgaa gagtatttgg 240
cagttcctgt cataaagggt aagaanagtg agcttgagaa gtttgctggg ggactctaca 300
ctancaatgt tgaggcattt attccaaaca ctggtcgtgg tatccaagg gcaacttctc 360
attgtttggg ccaaaatttt gctaaaatgt ttgagataaa ctttgaaaat gaaaaggagg 420
agaaagcaat ggtctggcag aattcatggg cctatagtag tcgaactatt ggggtcatgg 480
tgatggttca tggatgatgac aangggattg gtactacctc ctaaagtagc atcagtacaa 540
gttattgtga ttctgtgccc ttacaaagat gccgatactc aaggaatctt tgatgcctgt 600
ctgcactgtg aatacattga tgaagcagga tngcgtgag cagatctaga gatatatctc 660
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<210> 28
<211> 173
<212> PRT
<213> Glycine max

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Asp Leu Pro Leu Lys Leu Asn Gln Trp Cys Asn Val Val Xaa Trp Glu

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 ttttgcaact aaagaggagg cagatgaaga ggtcctccaa atattggaac tctacaggag 120  
 aatatatgaa gaatttttag cagttccagt gtccaaaggg aggaaaagtg agatggaaaa 180  
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 tatacaagggt gcaacttcac attgtcttgg tcaaaacttt gcaaagatgt ttgatatac 300  
 tttcgagaat gaaaagggtg aacgggtccat ggtgtggcag aactcttggg catacactac 360  
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 aaagggtgacc tatccaggnc attgtatcct gtgccattaa agatgntgac acaacagcta 480  
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 <211> 152  
 <212> PRT  
 <213> Triticum aestivum

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 Gly His Thr Val Phe Ala Thr Lys Glu Glu Ala Asp Glu Glu Val Leu  
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 Gln Ile Leu Glu Leu Tyr Arg Arg Ile Tyr Glu Glu Phe Leu Ala Val  
 35 40 45  
 Pro Val Ser Lys Gly Arg Lys Ser Glu Met Glu Lys Phe Ala Gly Gly  
 50 55 60  
 Leu Tyr Thr Thr Ser Val Glu Ala Phe Ile Pro Asn Thr Gly Arg Gly  
 65 70 75 80  
 Ile Gln Gly Ala Thr Ser His Cys Leu Gly Gln Asn Phe Ala Lys Met  
 85 90 95  
 Phe Asp Ile Thr Phe Glu Asn Glu Lys Gly Glu Arg Ser Met Val Trp  
 100 105 110  
 Gln Asn Ser Trp Ala Tyr Thr Thr Arg Ser Ile Gly Val Met Ile Met  
 115 120 125  
 Thr His Gly Asp Asp Lys Gly Leu Val Leu Pro Pro Lys Val Thr Tyr  
 130 135 140  
 Pro Gly His Cys Ile Leu Cys His  
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<210> 31  
 <211> 1072  
 <212> PRT  
 <213> Saccharomyces cerevisiae

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 Leu Thr Lys Asp Lys Pro Glu Phe Ser Phe Phe Asp Gly Pro Pro Phe

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Ala	Thr	Gly	Thr	Pro	His	Tyr	Gly	His	Ile	Leu	Ala	Ser	Thr	Ile	Lys
50						55					60				
Asp	Ile	Val	Pro	Arg	Tyr	Ala	Thr	Met	Thr	Gly	His	His	Val	Glu	Arg
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Arg	Phe	Gly	Trp	Asp	Thr	His	Gly	Val	Pro	Ile	Glu	His	Ile	Ile	Asp
				85					90					95	
Lys	Lys	Leu	Gly	Ile	Thr	Gly	Lys	Asp	Asp	Val	Phe	Lys	Tyr	Gly	Leu
			100					105					110		
Glu	Asn	Tyr	Asn	Asn	Glu	Cys	Arg	Ser	Ile	Val	Met	Thr	Tyr	Ala	Ser
		115					120					125			
Asp	Trp	Arg	Lys	Thr	Ile	Gly	Arg	Leu	Gly	Arg	Trp	Ile	Asp	Phe	Asp
	130					135					140				
Asn	Asp	Tyr	Lys	Thr	Met	Tyr	Pro	Ser	Phe	Met	Glu	Ser	Thr	Trp	Trp
145					150					155					160
Ala	Phe	Lys	Gln	Leu	His	Glu	Lys	Gly	Gln	Val	Tyr	Arg	Gly	Phe	Lys
				165					170					175	
Val	Met	Pro	Tyr	Ser	Thr	Gly	Leu	Thr	Thr	Pro	Leu	Ser	Asn	Phe	Glu
			180					185					190		
Ala	Gln	Gln	Asn	Tyr	Lys	Asp	Val	Asn	Asp	Pro	Ala	Val	Thr	Ile	Gly
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Phe	Asn	Val	Ile	Gly	Gln	Glu	Lys	Thr	Gln	Leu	Val	Ala	Trp	Thr	Thr
	210					215					220				
Thr	Pro	Trp	Thr	Leu	Pro	Ser	Asn	Leu	Ser	Leu	Cys	Val	Asn	Ala	Asp
225					230					235					240
Phe	Glu	Tyr	Val	Lys	Ile	Tyr	Asp	Glu	Thr	Arg	Asp	Arg	Tyr	Phe	Ile
				245					250					255	
Leu	Leu	Glu	Ser	Leu	Ile	Lys	Thr	Leu	Tyr	Lys	Lys	Pro	Lys	Asn	Glu
			260					265					270		
Lys	Tyr	Lys	Ile	Val	Glu	Lys	Ile	Lys	Gly	Ser	Asp	Leu	Val	Gly	Leu
		275					280					285			
Lys	Tyr	Glu	Pro	Leu	Phe	Pro	Tyr	Phe	Ala	Glu	Gln	Phe	His	Glu	Thr
		290				295					300				
Ala	Phe	Arg	Val	Ile	Ser	Asp	Asp	Tyr	Val	Thr	Ser	Asp	Ser	Gly	Thr
305					310					315					320
Gly	Ile	Val	His	Asn	Ala	Pro	Ala	Phe	Gly	Glu	Glu	Asp	Asn	Ala	Ala
				325					330					335	
Cys	Leu	Lys	Asn	Gly	Val	Ile	Ser	Glu	Asp	Ser	Val	Leu	Pro	Asn	Ala
			340					345					350		
Ile	Asp	Asp	Leu	Gly	Arg	Phe	Thr	Lys	Asp	Val	Pro	Asp	Phe	Glu	Gly

Ile Asp Asp Leu Gly Arg Phe Thr Lys Asp Val Pro Asp Phe Glu Gly  
 355 360 365  
 Val Tyr Val Lys Asp Ala Asp Lys Leu Ile Ile Lys Tyr Leu Thr Asn  
 370 375 380  
 Thr Gly Asn Leu Leu Leu Ala Ser Gln Ile Arg His Ser Tyr Pro Phe  
 385 390 395 400  
 Cys Trp Arg Ser Asp Thr Pro Leu Leu Tyr Arg Ser Val Pro Ala Trp  
 405 410 415  
 Phe Val Arg Val Lys Asn Ile Val Pro Gln Met Leu Asp Ser Val Met  
 420 425 430  
 Lys Ser His Trp Val Pro Asn Thr Ile Lys Glu Lys Arg Phe Ala Asn  
 435 440 445  
 Trp Ile Ala Asn Ala Arg Asp Trp Asn Val Ser Arg Asn Arg Tyr Trp  
 450 455 460  
 Gly Thr Pro Ile Pro Leu Trp Val Ser Asp Asp Phe Glu Glu Val Val  
 465 470 475 480  
 Cys Val Gly Ser Ile Lys Glu Leu Glu Glu Leu Thr Gly Val Arg Asn  
 485 490 495  
 Ile Thr Asp Leu His Arg Asp Val Ile Asp Lys Leu Thr Ile Pro Ser  
 500 505 510  
 Lys Gln Gly Lys Gly Asp Leu Lys Arg Ile Glu Glu Val Phe Asp Cys  
 515 520 525  
 Trp Phe Glu Ser Gly Ser Met Pro Tyr Ala Ser Gln His Tyr Pro Phe  
 530 535 540  
 Glu Asn Thr Glu Lys Phe Asp Glu Arg Val Pro Ala Asn Phe Ile Ser  
 545 550 555 560  
 Glu Gly Leu Asp Gln Thr Arg Gly Trp Phe Tyr Thr Leu Ala Val Leu  
 565 570 575  
 Gly Thr His Leu Phe Gly Ser Val Pro Tyr Lys Asn Val Ile Val Ser  
 580 585 590  
 Gly Ile Val Leu Ala Ala Asp Gly Arg Lys Met Ser Lys Ser Leu Lys  
 595 600 605  
 Asn Tyr Pro Asp Pro Ser Ile Val Leu Asn Lys Tyr Gly Ala Asp Ala  
 610 615 620  
 Leu Arg Leu Tyr Leu Ile Asn Ser Pro Val Leu Lys Ala Glu Ser Leu  
 625 630 635 640  
 Lys Phe Lys Glu Glu Gly Val Lys Glu Val Val Ser Lys Val Leu Leu  
 645 650 655  
 Pro Trp Trp Asn Ser Phe Lys Phe Leu Asp Gly Gln Ile Ala Leu Leu  
 660 665 670

Lys Lys Met Ser Asn Ile Asp Phe Gln Tyr Asp Asp Ser Val Lys Ser  
 675 680 685  
 Asp Asn Val Met Asp Arg Trp Ile Leu Ala Ser Met Gln Ser Leu Val  
 690 695 700  
 Gln Phe Ile His Glu Glu Met Gly Gln Tyr Lys Leu Tyr Thr Val Val  
 705 710 715 720  
 Pro Lys Leu Leu Asn Phe Ile Asp Glu Leu Thr Asn Trp Tyr Ile Arg  
 725 730 735  
 Phe Asn Arg Arg Arg Leu Lys Gly Glu Asn Gly Val Glu Asp Cys Leu  
 740 745 750  
 Lys Ala Leu Asn Ser Leu Phe Asp Ala Leu Phe Thr Phe Val Arg Ala  
 755 760 765  
 Met Ala Pro Phe Thr Pro Phe Leu Ser Glu Ser Ile Tyr Leu Arg Leu  
 770 775 780  
 Lys Glu Tyr Ile Pro Glu Ala Val Leu Ala Lys Tyr Gly Lys Asp Gly  
 785 790 795 800  
 Arg Ser Val His Phe Leu Ser Tyr Pro Val Val Lys Lys Glu Tyr Phe  
 805 810 815  
 Asp Glu Ala Ile Glu Thr Ala Val Ser Arg Met Gln Ser Val Ile Asp  
 820 825 830  
 Leu Gly Arg Asn Ile Arg Glu Lys Lys Thr Ile Ser Leu Lys Thr Pro  
 835 840 845  
 Leu Lys Thr Leu Val Ile Leu His Ser Asp Glu Ser Tyr Leu Lys Asp  
 850 855 860  
 Val Glu Ala Leu Lys Asn Tyr Ile Ile Glu Glu Leu Asn Val Arg Asp  
 865 870 875 880  
 Val Val Ile Thr Ser Asp Glu Ala Lys Tyr Gly Val Glu Tyr Lys Ala  
 885 890 895  
 Val Ala Asp Trp Pro Val Leu Gly Lys Lys Leu Lys Lys Asp Ala Lys  
 900 905 910  
 Lys Val Lys Asp Ala Leu Pro Ser Val Thr Ser Glu Gln Val Arg Glu  
 915 920 925  
 Tyr Leu Glu Ser Gly Lys Leu Glu Val Ala Gly Ile Glu Leu Val Lys  
 930 935 940  
 Gly Asp Leu Asn Ala Ile Arg Gly Leu Pro Glu Ser Ala Val Gln Ala  
 945 950 955 960  
 Gly Gln Glu Thr Arg Thr Asp Gln Asp Val Leu Ile Ile Met Asp Thr  
 965 970 975  
 Asn Ile Tyr Ser Glu Leu Lys Ser Glu Gly Leu Ala Arg Glu Leu Val  
 980 985 990

Asn Arg Ile Gln Lys Leu Arg Lys Lys Cys Gly Leu Glu Ala Thr Asp  
 995 1000 1005

Asp Val Leu Val Glu Tyr Glu Leu Val Lys Asp Thr Ile Asp Phe Glu  
 1010 1015 1020

Ala Ile Val Lys Glu His Phe Asp Met Leu Ser Lys Thr Cys Arg Ser  
 1025 1030 1035 1040

Asp Ile Ala Lys Tyr Asp Gly Ser Lys Thr Asp Pro Ile Gly Asp Glu  
 1045 1050 1055

Glu Gln Ser Ile Asn Asp Thr Ile Phe Lys Leu Lys Val Phe Lys Leu  
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<211> 1266

<212> PRT

<213> Homo sapiens

<400> 32

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Gln Glu Cys Leu Lys Gln Ser Lys His Lys Pro Lys Phe Thr Phe Tyr  
 35 40 45

Asp Gly Pro Pro Phe Ala Thr Gly Leu Pro His Tyr Gly His Ile Leu  
 50 55 60

Ala Gly Thr Ile Lys Asp Ile Val Thr Arg Tyr Ala His Gln Ser Gly  
 65 70 75 80

Phe His Val Asp Arg Arg Phe Gly Trp Asp Cys His Gly Leu Pro Val  
 85 90 95

Glu Tyr Glu Ile Asp Lys Thr Leu Gly Ile Arg Gly Pro Glu Asp Val  
 100 105 110

Ala Lys Met Gly Ile Thr Glu Tyr Asn Asn Gln Cys Arg Ala Ile Val  
 115 120 125

Met Arg Tyr Ser Ala Glu Trp Lys Ser Thr Val Ser Arg Leu Gly Arg  
 130 135 140

Trp Ile Asp Phe Asp Asn Asp Tyr Lys Thr Leu Tyr Pro Gln Phe Met  
 145 150 155 160

Glu Ser Val Trp Trp Val Phe Lys Gln Leu Tyr Asp Lys Gly Leu Val  
 165 170 175

Tyr Arg Gly Val Lys Val Met Pro Phe Ser Thr Ala Cys Asn Thr Pro  
 180 185 190

Leu Ser Asn Phe Glu Ser His Gln Asn Tyr Lys Asp Val Gln Asp Pro  
 195 200 205

Ser	Val	Phe	Val	Thr	Phe	Pro	Leu	Glu	Glu	Asp	Glu	Thr	Val	Ser	Leu	210	215	220	
Val	Ala	Trp	Thr	Thr	Thr	Pro	Trp	Thr	Leu	Pro	Ser	Asn	Leu	Ala	Val	225	230	235	240
Cys	Val	Asn	Pro	Glu	Met	Gln	Tyr	Val	Lys	Ile	Lys	Asp	Val	Ala	Arg	245	250	255	
Gly	Arg	Leu	Leu	Ile	Leu	Met	Glu	Ala	Arg	Leu	Ser	Ala	Leu	Tyr	Lys	260	265	270	
Leu	Glu	Ser	Asp	Tyr	Glu	Ile	Leu	Glu	Arg	Phe	Pro	Gly	Ala	Tyr	Leu	275	280	285	
Lys	Gly	Lys	Lys	Tyr	Arg	Pro	Leu	Phe	Asp	Tyr	Phe	Leu	Lys	Cys	Lys	290	295	300	
Glu	Asn	Gly	Ala	Phe	Thr	Val	Leu	Val	Asp	Asn	Tyr	Val	Lys	Glu	Glu	305	310	315	320
Glu	Gly	Thr	Gly	Val	Val	His	Gln	Ala	Pro	Tyr	Phe	Gly	Ala	Glu	Asp	325	330	335	
Tyr	Arg	Val	Cys	Met	Asp	Phe	Asn	Ile	Ile	Arg	Lys	Asp	Ser	Leu	Pro	340	345	350	
Val	Cys	Pro	Val	Asp	Ala	Ser	Gly	Cys	Phe	Thr	Thr	Glu	Val	Thr	Asp	355	360	365	
Phe	Ala	Gly	Gln	Tyr	Val	Lys	Asp	Ala	Asp	Lys	Ser	Ile	Ile	Arg	Thr	370	375	380	
Leu	Lys	Glu	Gln	Gly	Arg	Leu	Leu	Val	Ala	Thr	Thr	Phe	Thr	His	Ser	385	390	395	400
Tyr	Pro	Phe	Cys	Trp	Arg	Ser	Asp	Thr	Pro	Leu	Ile	Tyr	Lys	Ala	Val	405	410	415	
Pro	Ser	Trp	Phe	Val	Arg	Val	Glu	Asn	Met	Val	Asp	Gln	Leu	Leu	Arg	420	425	430	
Asn	Asn	Asp	Leu	Cys	Tyr	Trp	Val	Pro	Glu	Leu	Val	Arg	Glu	Lys	Arg	435	440	445	
Phe	Gly	Asn	Trp	Leu	Lys	Asp	Ala	Arg	Asp	Trp	Thr	Ile	Ser	Arg	Asn	450	455	460	
Arg	Tyr	Trp	Gly	Thr	Pro	Ile	Pro	Leu	Trp	Val	Ser	Asp	Asp	Phe	Glu	465	470	475	480
Glu	Val	Val	Cys	Ile	Gly	Ser	Val	Ala	Glu	Leu	Glu	Glu	Leu	Ser	Gly	485	490	495	
Ala	Lys	Ile	Ser	Asp	Leu	His	Arg	Glu	Ser	Val	Asp	His	Leu	Thr	Ile	500	505	510	
Pro	Ser	Arg	Cys	Gly	Lys	Gly	Ser	Leu	His	Arg	Ile	Ser	Glu	Val	Phe	515	520	525	

Asp Cys Trp Phe Glu Ser Gly Ser Met Pro Tyr Ala Gln Val His Tyr  
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 Pro Phe Glu Asn Lys Arg Glu Phe Glu Asp Ala Phe Pro Ala Asp Phe  
 545 550 555 560  
 Ile Ala Glu Gly Ile Asp Gln Thr Arg Gly Trp Phe Tyr Thr Leu Leu  
 565 570 575  
 Val Leu Ala Thr Ala Leu Phe Gly Gln Pro Pro Phe Lys Asn Val Ile  
 580 585 590  
 Val Asn Gly Leu Val Leu Ala Ser Asp Gly Gln Lys Met Ser Lys Arg  
 595 600 605  
 Lys Lys Asn Tyr Pro Asp Pro Val Ser Ile Ile Gln Lys Tyr Gly Ala  
 610 615 620  
 Asp Ala Leu Arg Leu Tyr Leu Ile Asn Ser Pro Val Val Arg Ala Glu  
 625 630 635 640  
 Asn Leu Arg Phe Lys Glu Glu Gly Val Arg Asp Val Leu Lys Asp Val  
 645 650 655  
 Leu Leu Pro Trp Tyr Asn Ala Tyr Arg Phe Leu Ile Gln Asn Val Leu  
 660 665 670  
 Arg Leu Gln Lys Glu Glu Glu Ile Glu Phe Leu Tyr Asn Glu Asn Thr  
 675 680 685  
 Val Arg Glu Ser Pro Asn Ile Thr Asp Arg Trp Ile Leu Ser Phe Met  
 690 695 700  
 Gln Ser Leu Ile Gly Phe Phe Glu Thr Glu Met Ala Ala Tyr Arg Leu  
 705 710 715 720  
 Tyr Thr Val Val Pro Arg Leu Val Lys Phe Val Asp Ile Leu Thr Asn  
 725 730 735  
 Trp Tyr Val Arg Met Asn Arg Arg Arg Leu Lys Gly Glu Asn Gly Met  
 740 745 750  
 Glu Asp Cys Val Met Ala Leu Glu Thr Leu Phe Ser Val Leu Leu Ser  
 755 760 765  
 Leu Cys Arg Leu Met Ala Pro Tyr Thr Pro Phe Leu Thr Glu Leu Met  
 770 775 780  
 Tyr Gln Asn Leu Lys Val Leu Ile Asp Pro Val Ser Val Gln Asp Lys  
 785 790 795 800  
 Asp Thr Leu Ser Ile His Tyr Leu Met Leu Pro Arg Val Arg Glu Glu  
 805 810 815  
 Leu Ile Asp Lys Lys Thr Glu Ser Ala Val Ser Gln Met Gln Ser Val  
 820 825 830  
 Ile Glu Leu Gly Arg Val Ile Arg Asp Arg Lys Thr Ile Pro Ile Lys  
 835 840 845

Tyr Pro Leu Lys Glu Ile Val Val Ile His Gln Asp Pro Glu Ala Leu  
 850 855 860  
 Lys Asp Ile Lys Ser Leu Glu Lys Tyr Ile Ile Glu Glu Leu Asn Val  
 865 870 875 880  
 Arg Lys Val Thr Leu Ser Thr Asp Lys Asn Lys Tyr Gly Ile Arg Leu  
 885 890 895  
 Arg Ala Glu Pro Asp His Met Val Leu Gly Lys Arg Leu Lys Gly Ala  
 900 905 910  
 Phe Lys Ala Val Met Thr Ser Ile Lys Gln Leu Ser Ser Glu Glu Leu  
 915 920 925  
 Glu Gln Phe Gln Lys Thr Gly Thr Ile Val Val Glu Gly His Glu Leu  
 930 935 940  
 His Asp Glu Asp Ile Arg Leu Met Tyr Thr Phe Asp Gln Ala Thr Gly  
 945 950 955 960  
 Gly Thr Ala Gln Phe Glu Ala His Ser Asp Ala Gln Ala Leu Val Leu  
 965 970 975  
 Leu Asp Val Thr Pro Asp Gln Ser Met Val Asp Glu Gly Met Ala Arg  
 980 985 990  
 Glu Val Ile Asn Arg Ile Gln Lys Leu Arg Lys Lys Cys Asn Leu Val  
 995 1000 1005  
 Pro Thr Asp Glu Ile Thr Val Tyr Tyr Lys Ala Lys Ser Glu Gly Thr  
 1010 1015 1020  
 Tyr Leu Asn Ser Val Ile Glu Ser His Thr Glu Phe Ile Phe Thr Thr  
 1025 1030 1035 1040  
 Ile Lys Ala Pro Leu Lys Pro Tyr Pro Val Ser Pro Ser Asp Lys Val  
 1045 1050 1055  
 Leu Ile Gln Glu Lys Thr Gln Leu Lys Gly Ser Glu Leu Glu Ile Thr  
 1060 1065 1070  
 Leu Thr Arg Gly Ser Ser Leu Pro Gly Pro Ala Cys Ala Tyr Val Asn  
 1075 1080 1085  
 Leu Asn Ile Cys Ala Asn Gly Ser Glu Gln Gly Gly Val Leu Leu Leu  
 1090 1095 1100  
 Glu Asn Pro Lys Gly Asp Asn Arg Leu Asp Leu Leu Lys Leu Lys Ser  
 1105 1110 1115 1120  
 Val Val Thr Ser Ile Phe Gly Val Lys Asn Thr Glu Leu Ala Val Phe  
 1125 1130 1135  
 His Asp Glu Thr Glu Ile Gln Asn Gln Thr Asp Leu Leu Ser Leu Ser  
 1140 1145 1150  
 Gly Lys Thr Leu Cys Val Thr Ala Gly Ser Ala Pro Ser Leu Ile Asn  
 1155 1160 1165



Ser Ser Ser Thr Leu Leu Cys Gln Tyr Ile Asn Leu Gln Leu Leu Asn  
 1170 1175 1180

Ala Lys Pro Gln Glu Cys Leu Met Gly Thr Val Gly Thr Leu Leu Leu  
 1185 1190 1195 1200

Glu Asn Pro Leu Gly Gln Asn Gly Leu Thr His Gln Gly Leu Leu Tyr  
 1205 1210 1215

Glu Ala Ala Lys Val Phe Gly Leu Arg Ser Arg Lys Leu Lys Leu Phe  
 1220 1225 1230

Leu Asn Glu Thr Gln Thr Gln Glu Ile Thr Glu Asp Ile Pro Val Lys  
 1235 1240 1245

Thr Leu Asn Met Lys Thr Val Tyr Val Ser Val Leu Pro Thr Thr Ala  
 1250 1255 1260

Asp Phe  
 1265

<210> 33  
 <211> 1262  
 <212> PRT  
 <213> Homo sapiens

<400> 33  
 Met Leu Gln Gln Val Pro Glu Asn Ile Asn Phe Pro Ala Glu Glu Glu  
 1 5 10 15

Lys Ile Leu Glu Phe Trp Thr Glu Phe Asn Cys Phe Gln Glu Cys Leu  
 20 25 30

Lys Gln Ser Lys His Lys Pro Lys Phe Thr Phe Tyr Asp Gly Pro Pro  
 35 40 45

Phe Ala Thr Gly Leu Pro His Tyr Gly His Ile Leu Ala Gly Thr Ile  
 50 55 60

Lys Asp Ile Val Thr Arg Tyr Ala His Gln Ser Gly Phe His Val Asp  
 65 70 75 80

Arg Arg Phe Gly Trp Asp Cys His Gly Leu Pro Val Glu Tyr Glu Ile  
 85 90 95

Asp Lys Thr Leu Gly Ile Arg Gly Pro Glu Asp Val Ala Lys Met Gly  
 100 105 110

Ile Thr Glu Tyr Asn Asn Gln Cys Arg Ala Ile Val Met Arg Tyr Ser  
 115 120 125

Ala Glu Trp Lys Ser Thr Val Ser Arg Leu Gly Arg Trp Ile Asp Phe  
 130 135 140

Asp Asn Asp Tyr Lys Thr Leu Tyr Pro Gln Phe Met Glu Ser Val Trp  
 145 150 155 160

Trp Val Phe Lys Gln Leu Tyr Asp Lys Gly Leu Val Tyr Arg Gly Val  
 165 170 175

Lys Val Met Pro Phe Ser Thr Ala Cys Asn Thr Pro Leu Ser Asn Phe  
 180 185 190  
 Glu Ser His Gln Asn Tyr Lys Asp Val Gln Asp Pro Ser Val Phe Val  
 195 200 205  
 Thr Phe Pro Leu Glu Glu Asp Glu Thr Val Ser Leu Val Ala Trp Thr  
 210 215 220  
 Thr Thr Pro Trp Thr Leu Pro Ser Asn Leu Ala Val Cys Val Asn Pro  
 225 230 235 240  
 Glu Met Gln Tyr Val Lys Ile Lys Asp Val Ala Arg Gly Arg Leu Leu  
 245 250 255  
 Ile Leu Met Glu Ala Arg Leu Ser Ala Leu Tyr Lys Leu Glu Ser Asp  
 260 265 270  
 Tyr Glu Ile Leu Glu Arg Phe Pro Gly Ala Tyr Leu Lys Gly Lys Lys  
 275 280 285  
 Tyr Arg Pro Leu Phe Asp Tyr Phe Leu Lys Cys Lys Glu Asn Gly Ala  
 290 295 300  
 Phe Thr Val Leu Val Asp Asn Tyr Val Lys Glu Glu Glu Gly Thr Gly  
 305 310 315 320  
 Val Val His Gln Ala Pro Tyr Phe Gly Ala Glu Asp Tyr Arg Val Cys  
 325 330 335  
 Met Asp Phe Asn Ile Ile Arg Lys Asp Ser Leu Pro Val Cys Pro Val  
 340 345 350  
 Asp Ala Ser Gly Cys Phe Thr Thr Glu Val Thr Asp Phe Ala Gly Gln  
 355 360 365  
 Tyr Val Lys Asp Ala Asp Lys Ser Ile Ile Arg Thr Leu Lys Glu Gln  
 370 375 380  
 Gly Arg Leu Leu Val Ala Thr Thr Phe Thr His Ser Tyr Pro Phe Cys  
 385 390 395 400  
 Trp Arg Ser Asp Thr Pro Leu Ile Tyr Lys Ala Val Pro Ser Trp Phe  
 405 410 415  
 Val Arg Val Glu Asn Met Val Asp Gln Leu Leu Arg Asn Asn Asp Leu  
 420 425 430  
 Cys Tyr Trp Val Pro Glu Leu Val Arg Glu Lys Arg Phe Gly Asn Trp  
 435 440 445  
 Leu Lys Asp Ala Arg Asp Trp Thr Ile Ser Arg Asn Arg Tyr Trp Gly  
 450 455 460  
 Thr Pro Ile Pro Leu Trp Val Ser Asp Asp Phe Glu Glu Val Val Cys  
 465 470 475 480  
 Ile Gly Ser Val Ala Glu Leu Glu Glu Leu Ser Gly Ala Lys Ile Ser  
 485 490 495

Asp	Leu	His	Arg	Glu	Ser	Val	Asp	His	Leu	Thr	Ile	Pro	Ser	Arg	Cys	500	505	510
Gly	Lys	Gly	Ser	Leu	His	Arg	Ile	Ser	Glu	Val	Phe	Asp	Cys	Trp	Phe	515	520	525
Glu	Ser	Gly	Ser	Met	Pro	Tyr	Ala	Gln	Val	His	Tyr	Pro	Phe	Glu	Asn	530	535	540
Lys	Arg	Glu	Phe	Glu	Asp	Ala	Phe	Pro	Ala	Asp	Phe	Ile	Ala	Glu	Gly	545	550	555
Ile	Asp	Gln	Thr	Arg	Gly	Trp	Phe	Tyr	Thr	Leu	Leu	Val	Leu	Ala	Thr	565	570	575
Ala	Leu	Phe	Gly	Gln	Pro	Pro	Phe	Lys	Asn	Val	Ile	Val	Asn	Gly	Leu	580	585	590
Val	Leu	Ala	Ser	Asp	Gly	Gln	Lys	Met	Ser	Lys	Arg	Lys	Lys	Asn	Tyr	595	600	605
Pro	Asp	Pro	Val	Ser	Ile	Ile	Gln	Lys	Tyr	Gly	Ala	Asp	Ala	Leu	Arg	610	615	620
Leu	Tyr	Leu	Ile	Asn	Ser	Pro	Val	Val	Arg	Ala	Glu	Asn	Leu	Arg	Phe	625	630	635
Lys	Glu	Glu	Gly	Val	Arg	Asp	Val	Leu	Lys	Asp	Val	Leu	Leu	Pro	Trp	645	650	655
Tyr	Asn	Ala	Tyr	Arg	Phe	Leu	Ile	Gln	Asn	Val	Leu	Arg	Leu	Gln	Lys	660	665	670
Glu	Glu	Glu	Ile	Glu	Phe	Leu	Tyr	Asn	Glu	Asn	Thr	Val	Arg	Glu	Ser	675	680	685
Pro	Asn	Ile	Thr	Asp	Arg	Trp	Ile	Leu	Ser	Phe	Met	Gln	Ser	Leu	Ile	690	695	700
Gly	Phe	Phe	Glu	Thr	Glu	Met	Ala	Ala	Tyr	Arg	Leu	Tyr	Thr	Val	Val	705	710	715
Pro	Arg	Leu	Val	Lys	Phe	Val	Asp	Ile	Leu	Thr	Asn	Trp	Tyr	Val	Arg	725	730	735
Met	Asn	Arg	Arg	Arg	Leu	Lys	Gly	Glu	Asn	Gly	Met	Glu	Asp	Cys	Val	740	745	750
Met	Ala	Leu	Glu	Thr	Leu	Phe	Ser	Val	Leu	Leu	Ser	Leu	Cys	Arg	Leu	755	760	765
Ile	Ala	Pro	Tyr	Thr	Pro	Phe	Leu	Thr	Glu	Leu	Met	Tyr	Gln	Asn	Leu	770	775	780
Lys	Val	Leu	Ile	Asp	Pro	Val	Ser	Val	Gln	Asp	Lys	Asp	Thr	Leu	Ser	785	790	795
Ile	His	Tyr	Leu	Met	Leu	Pro	Arg	Val	Arg	Glu	Glu	Leu	Ile	Asp	Lys	805	810	815

Lys Thr Glu Ser Ala Val Ser Gln Met Gln Ser Val Ile Glu Leu Gly  
 820 825 830  
 Arg Val Ile Arg Asp Arg Lys Thr Ile Pro Ile Lys Tyr Pro Leu Lys  
 835 840 845  
 Glu Ile Val Val Ile His Gln Asp Pro Glu Ala Leu Lys Asp Ile Lys  
 850 855 860  
 Ser Leu Glu Lys Tyr Ile Ile Glu Glu Leu Asn Val Arg Lys Val Thr  
 865 870 875 880  
 Leu Ser Thr Asp Lys Asn Lys Tyr Gly Ile Arg Leu Arg Ala Glu Pro  
 885 890 895  
 Asp His Met Val Leu Gly Lys Arg Leu Lys Gly Ala Phe Lys Ala Val  
 900 905 910  
 Met Thr Ser Ile Lys Gln Leu Ser Ser Glu Glu Leu Glu Gln Phe Gln  
 915 920 925  
 Lys Thr Gly Thr Ile Val Val Glu Gly His Glu Leu His Asp Glu Asp  
 930 935 940  
 Ile Arg Leu Met Tyr Thr Phe Asp Gln Ala Thr Gly Gly Thr Ala Gln  
 945 950 955 960  
 Phe Glu Ala His Ser Asp Ala Gln Ala Leu Val Leu Leu Asp Val Thr  
 965 970 975  
 Pro Asp Gln Ser Met Val Asp Glu Gly Met Ala Arg Glu Val Ile Asn  
 980 985 990  
 Arg Ile Gln Lys Leu Arg Lys Lys Cys Asn Leu Val Pro Thr Asp Glu  
 995 1000 1005  
 Ile Thr Val Tyr Tyr Lys Ala Lys Ser Glu Gly Thr Tyr Leu Asn Ser  
 1010 1015 1020  
 Val Ile Glu Ser His Thr Glu Phe Ile Phe Thr Thr Ile Lys Ala Pro  
 1025 1030 1035 1040  
 Leu Lys Pro Tyr Pro Val Ser Pro Ser Asp Lys Val Leu Ile Gln Glu  
 1045 1050 1055  
 Lys Thr Gln Leu Lys Gly Ser Glu Leu Glu Ile Thr Leu Thr Arg Gly  
 1060 1065 1070  
 Ser Ser Leu Pro Gly Pro Ala Cys Ala Tyr Val Asn Leu Asn Ile Cys  
 1075 1080 1085  
 Ala Asn Gly Ser Glu Gln Gly Gly Val Leu Leu Leu Glu Asn Pro Lys  
 1090 1095 1100  
 Gly Asp Asn Arg Leu Asp Leu Leu Lys Leu Lys Ser Val Val Thr Ser  
 1105 1110 1115 1120  
 Ile Phe Gly Val Lys Asn Thr Glu Leu Ala Val Phe His Asp Glu Thr  
 1125 1130 1135

Glu Ile Gln Asn Gln Thr Asp Leu Leu Ser Leu Ser Gly Lys Thr Leu  
 1140 1145 1150

Cys Val Thr Ala Gly Ser Ala Pro Ser Leu Ile Asn Ser Ser Ser Thr  
 1155 1160 1165

Leu Leu Cys Gln Tyr Ile Asn Leu Gln Leu Leu Asn Ala Lys Pro Gln  
 1170 1175 1180

Glu Cys Leu Met Gly Thr Val Gly Thr Leu Leu Leu Glu Asn Pro Leu  
 1185 1190 1195 1200

Gly Gln Asn Gly Leu Thr His Gln Gly Leu Leu Tyr Glu Ala Ala Lys  
 1205 1210 1215

Val Phe Gly Leu Arg Ser Arg Lys Leu Lys Leu Phe Leu Asn Glu Thr  
 1220 1225 1230

Gln Thr Gln Glu Ile Thr Glu Asp Ile Pro Val Lys Thr Leu Asn Met  
 1235 1240 1245

Lys Thr Val Tyr Val Ser Val Leu Pro Thr Thr Ala Asp Phe  
 1250 1255 1260

<210> 34  
 <211> 626  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 34  
 Met Glu Gly Ala Ala Asp Gln Thr Thr Lys Ala Leu Ser Glu Leu Ala  
 1 5 10 15

Met Asp Ser Ser Thr Thr Leu Asn Ala Ala Glu Ser Ser Ala Gly Asp  
 20 25 30

Gly Ala Gly Pro Arg Ser Lys Asn Ala Leu Lys Lys Glu Gln Lys Met  
 35 40 45

Lys Gln Lys Glu Glu Glu Lys Arg Arg Lys Asp Glu Glu Lys Ala Glu  
 50 55 60

Lys Ala Lys Gln Ala Pro Lys Ala Ser Ser Gln Lys Ala Val Ala Ala  
 65 70 75 80

Asp Asp Glu Glu Met Asp Ala Thr Gln Tyr Tyr Glu Asn Arg Leu Lys  
 85 90 95

Tyr Leu Ala Ala Glu Lys Ala Lys Gly Glu Asn Pro Tyr Pro His Lys  
 100 105 110

Phe Ala Val Ser Met Ser Ile Pro Lys Tyr Ile Glu Thr Tyr Gly Ser  
 115 120 125

Leu Asn Asn Gly Asp His Val Glu Asn Ala Glu Glu Ser Leu Ala Gly  
 130 135 140

Arg Ile Met Ser Lys Arg Ser Ser Ser Ser Lys Leu Phe Phe Tyr Asp  
 145 150 155 160

Leu His Gly Asp Asp Phe Lys Val Gln Val Met Ala Asp Ala Ser Lys  
 165 170 175  
 Ser Gly Leu Asp Glu Ala Glu Phe Leu Lys Leu His Ser Asn Ala Lys  
 180 185 190  
 Arg Gly Asp Ile Val Gly Val Ile Gly Phe Pro Gly Lys Thr Lys Arg  
 195 200 205  
 Gly Glu Leu Ser Ile Phe Pro Arg Ser Phe Ile Leu Leu Ser His Cys  
 210 215 220  
 Leu His Met Met Pro Arg Lys Ala Asp Asn Val Asn Ala Lys Lys Pro  
 225 230 235 240  
 Glu Ile Trp Val Pro Gly Gln Thr Arg Asn Pro Glu Ala Tyr Val Leu  
 245 250 255  
 Lys Asp Gln Glu Ser Arg Tyr Arg Gln Arg His Leu Asp Met Ile Leu  
 260 265 270  
 Asn Val Glu Val Arg Gln Ile Phe Arg Thr Arg Ala Lys Ile Ile Ser  
 275 280 285  
 Tyr Val Arg Arg Phe Leu Asp Asn Lys Asn Phe Leu Glu Val Glu Thr  
 290 295 300  
 Pro Met Met Asn Met Ile Ala Gly Gly Ala Ala Ala Arg Pro Phe Val  
 305 310 315 320  
 Thr His His Asn Asp Leu Asp Met Arg Leu Tyr Met Arg Ile Ala Pro  
 325 330 335  
 Glu Leu Tyr Leu Lys Gln Leu Ile Val Gly Gly Leu Glu Arg Val Tyr  
 340 345 350  
 Glu Ile Gly Lys Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn  
 355 360 365  
 Pro Glu Phe Thr Thr Cys Glu Phe Tyr Met Ala Phe Ala Asp Tyr Asn  
 370 375 380  
 Asp Leu Met Glu Met Thr Glu Val Met Leu Ser Gly Met Val Lys Glu  
 385 390 395 400  
 Leu Thr Gly Gly Tyr Lys Ile Lys Tyr Asn Ala Asn Gly Tyr Asp Lys  
 405 410 415  
 Asp Pro Ile Glu Ile Asp Phe Thr Pro Pro Phe Arg Arg Ile Glu Met  
 420 425 430  
 Ile Gly Glu Leu Glu Lys Val Ala Lys Leu Asn Ile Pro Lys Asp Leu  
 435 440 445  
 Ala Ser Glu Glu Ala Asn Lys Tyr Leu Ile Asp Ala Cys Ala Arg Phe  
 450 455 460  
 Asp Val Lys Cys Pro Pro Pro Gln Thr Thr Ala Arg Leu Leu Asp Lys  
 465 470 475 480

Leu Val Gly Glu Phe Leu Glu Pro Thr Cys Val Asn Pro Thr Phe Ile  
485 490 495

Ile Asn Gln Pro Glu Ile Met Ser Pro Leu Ala Lys Trp His Arg Ser  
500 505 510

Lys Ser Gly Leu Thr Glu Arg Phe Glu Leu Phe Ile Asn Lys His Glu  
515 520 525

Leu Cys Asn Ala Tyr Thr Glu Leu Asn Asp Pro Val Val Gln Arg Gln  
530 535 540

Arg Phe Ala Asp Gln Leu Lys Asp Arg Gln Ser Gly Asp Asp Glu Ala  
545 550 555 560

Met Ala Leu Asp Glu Thr Phe Cys Asn Ala Leu Glu Tyr Gly Leu Ala  
565 570 575

Pro Thr Gly Gly Trp Gly Leu Gly Ile Asp Arg Leu Ser Met Leu Leu  
580 585 590

Thr Asp Ser Leu Asn Ile Lys Glu Val Leu Phe Phe Pro Ala Met Arg  
595 600 605

Pro Pro Gln Glu Glu Ser Ala Ala Ala Gln Ala Pro Leu Thr Glu Glu  
610 615 620

Lys Lys  
625

<210> 35  
<211> 451  
<212> PRT  
<213> Homo sapiens

<400> 35  
Met Val Gly Ser Ala Leu Arg Arg Gly Ala His Ala Tyr Val Tyr Leu  
1 5 10 15

Val Ser Lys Ala Ser His Ile Ser Arg Gly His Gln His Gln Ala Trp  
20 25 30

Gly Ser Arg Pro Pro Ala Ala Glu Cys Ala Thr Gln Arg Ala Pro Gly  
35 40 45

Ser Val Val Glu Leu Leu Gly Lys Ser Tyr Pro Gln Asp Asp His Ser  
50 55 60

Asn Leu Thr Arg Lys Val Leu Thr Arg Val Gly Arg Asn Leu His Asn  
65 70 75 80

Gln Gln His His Pro Leu Trp Leu Ile Lys Glu Arg Val Lys Glu His  
85 90 95

Phe Tyr Lys Gln Tyr Val Gly Arg Phe Gly Thr Pro Leu Phe Ser Val  
100 105 110

Tyr Asp Asn Leu Ser Pro Val Val Thr Thr Trp Gln Asn Phe Asp Ser  
115 120 125

Leu Leu Ile Pro Ala Asp His Pro Ser Arg Lys Lys Gly Asp Asn Tyr  
 130 135 140  
 Tyr Leu Asn Arg Thr His Met Leu Arg Ala His Thr Ser Ala His Gln  
 145 150 155 160  
 Trp Asp Leu Leu His Ala Gly Leu Asp Ala Phe Leu Val Val Gly Asp  
 165 170 175  
 Val Tyr-Arg Arg Asp Gln Ile Asp Ser Gln His Tyr Pro Ile Phe His  
 180 185 190  
 Gln Leu Glu Ala Val Arg Leu Phe Ser Lys His Glu Leu Phe Ala Gly  
 195 200 205  
 Ile Lys Asp Gly Glu Ser Leu Gln Leu Phe Glu Gln Ser Ser Arg Ser  
 210 215 220  
 Ala His Lys Gln Glu Thr His Thr Met Glu Ala Val Lys Leu Val Glu  
 225 230 235 240  
 Phe Asp Leu Lys Gln Thr Leu Thr Arg Leu Met Ala His Leu Phe Gly  
 245 250 255  
 Asp Glu Leu Glu Ile Arg Trp Val Asp Cys Tyr Phe Pro Phe Thr His  
 260 265 270  
 Pro Ser Phe Glu Met Glu Ile Asn Phe His Gly Glu Trp Leu Glu Val  
 275 280 285  
 Leu Gly Cys Gly Val Met Glu Gln Gln Leu Val Asn Ser Ala Gly Ala  
 290 295 300  
 Gln Asp Arg Ile Gly Trp Ala Phe Gly Leu Gly Leu Glu Arg Leu Ala  
 305 310 315 320  
 Met Ile Leu Tyr Asp Ile Pro Asp Ile Arg Leu Phe Trp Cys Glu Asp  
 325 330 335  
 Glu Arg Phe Leu Lys Gln Phe Cys Val Ser Asn Ile Asn Gln Lys Val  
 340 345 350  
 Lys Phe Gln Pro Leu Ser Lys Tyr Pro Ala Val Ile Asn Asp Ile Ser  
 355 360 365  
 Phe Trp Leu Pro Ser Glu Asn Tyr Ala Glu Asn Asp Phe Tyr Asp Leu  
 370 375 380  
 Val Arg Thr Ile Gly Gly Asp Leu Val Glu Lys Val Asp Leu Ile Asp  
 385 390 395 400  
 Lys Phe Val His Pro Lys Thr His Lys Thr Ser His Cys Tyr Arg Ile  
 405 410 415  
 Thr Tyr Arg His Met Glu Arg Thr Leu Ser Gln Arg Glu Val Arg His  
 420 425 430  
 Ile His Gln Ala Leu Gln Glu Ala Ala Val Gln Leu Leu Gly Val Glu  
 435 440 445



Gly Arg Phe  
450

<210> 36  
<211> 503  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 36

Met Ser Asp Phe Gln Leu Glu Ile Leu Lys Lys Leu Asp Glu Leu Asp  
1 5 10 15

Glu Ile Lys Ser Thr Leu Ala Thr Phe Pro Gln His Gly Ser Gln Asp  
20 25 30

Val Leu Ser Ala Leu Asn Ser Leu Lys Ala His Asn Lys Leu Glu Phe  
35 40 45

Ser Lys Val Asp Thr Val Thr Tyr Asp Leu Thr Lys Glu Gly Ala Gln  
50 55 60

Ile Leu Asn Glu Gly Ser Tyr Glu Ile Lys Leu Val Lys Leu Ile Gln  
65 70 75 80

Glu Leu Gly Gln Leu Gln Ile Lys Asp Val Met Ser Lys Leu Gly Pro  
85 90 95

Gln Val Gly Lys Val Gly Gln Ala Arg Ala Phe Lys Asn Gly Trp Ile  
100 105 110

Ala Lys Asn Ala Ser Asn Glu Leu Glu Leu Ser Ala Lys Leu Gln Asn  
115 120 125

Thr Asp Leu Asn Glu Leu Thr Asp Glu Thr Gln Ser Ile Leu Ala Gln  
130 135 140

Ile Lys Asn Asn Ser His Leu Asp Ser Ile Asp Ala Lys Ile Leu Asn  
145 150 155 160

Asp Leu Lys Lys Arg Lys Leu Ile Ala Gln Gly Lys Ile Thr Asp Phe  
165 170 175

Ser Val Thr Lys Gly Pro Glu Phe Ser Thr Asp Leu Thr Lys Leu Glu  
180 185 190

Thr Asp Leu Thr Ser Asp Met Val Ser Thr Asn Ala Tyr Lys Asp Leu  
195 200 205

Lys Phe Lys Pro Tyr Asn Phe Asn Ser Gln Gly Val Gln Ile Ser Ser  
210 215 220

Gly Ala Leu His Pro Leu Asn Lys Val Arg Glu Glu Phe Arg Gln Ile  
225 230 235 240

Phe Phe Ser Met Gly Phe Thr Glu Met Pro Ser Asn Gln Tyr Val Glu  
245 250 255

Thr Gly Phe Trp Asn Phe Asp Ala Leu Tyr Val Pro Gln Gln His Pro  
260 265 270

Ala Arg Asp Leu Gln Asp Thr Phe Tyr Ile Lys Asp Pro Leu Thr Ala  
 275 280 285  
 Glu Leu Pro Asp Asp Lys Thr Tyr Met Asp Asn Ile Lys Ala Val His  
 290 295 300  
 Glu Gln Gly Arg Phe Gly Ser Ile Gly Tyr Arg Tyr Asn Trp Lys Pro  
 305 310 315 320  
 Glu Glu Cys Gln Lys Leu Val Leu Arg Thr His Ser Thr Ala Ile Ser  
 325 330 335  
 Ala Arg Met Leu His Asp Leu Ala Lys Asp Pro Lys Pro Thr Arg Leu  
 340 345 350  
 Phe Ser Ile Asp Arg Val Phe Arg Asn Glu Ala Val Asp Ala Thr His  
 355 360 365  
 Leu Ala Glu Phe His Gln Val Glu Gly Val Leu Ala Asp Tyr Asn Ile  
 370 375 380  
 Thr Leu Gly Asp Leu Ile Lys Phe Met Glu Glu Phe Phe Glu Arg Met  
 385 390 395 400  
 Gly Val Thr Gly Leu Arg Phe Lys Pro Thr Tyr Asn Pro Tyr Thr Glu  
 405 410 415  
 Pro Ser Met Glu Ile Phe Ser Trp His Glu Gly Leu Gln Lys Trp Val  
 420 425 430  
 Glu Ile Gly Asn Ser Gly Met Phe Arg Pro Glu Met Leu Glu Ser Met  
 435 440 445  
 Gly Leu Pro Lys Asp Leu Arg Val Leu Gly Trp Gly Leu Ser Leu Glu  
 450 455 460  
 Arg Pro Thr Met Ile Lys Tyr Lys Val Gln Asn Ile Arg Glu Leu Leu  
 465 470 475 480  
 Gly His Lys Val Ser Leu Asp Phe Ile Glu Thr Asn Pro Ala Ala Arg  
 485 490 495  
 Leu Asp Glu Asp Leu Tyr Glu  
 500  
 <210> 37  
 <211> 1440  
 <212> PRT  
 <213> Homo sapiens  
 <400> 37  
 Met Glu His Thr Glu Ile Asp His Trp Leu Glu Phe Ser Ala Thr Lys  
 1 5 10 15  
 Leu Ser Ser Cys Asp Ser Phe Thr Ser Thr Ile Asn Glu Leu Asn His  
 20 25 30  
 Cys Leu Ser Leu Arg Thr Tyr Leu Val Gly Asn Ser Leu Ser Leu Ala  
 35 40 45

Asp Leu Cys Val Trp Ala Thr Leu Lys Gly Asn Ala Ala Trp Gln Glu  
 50 55 60  
 Gln Leu Lys Gln Lys Lys Ala Pro Val His Val Lys Arg Trp Phe Gly  
 65 70 75 80  
 Phe Leu Glu Ala Gln Gln Ala Phe Gln Ser Val Gly Thr Lys Trp Asp  
 85 90 95  
 Val Ser Thr Thr Lys Ala Arg Val Ala Pro Glu Lys Lys Gln Asp Val  
 100 105 110  
 Gly Lys Phe Val Glu Leu Pro Gly Ala Glu Met Gly Lys Val Thr Val  
 115 120 125  
 Arg Phe Pro Pro Glu Ala Ser Gly Tyr Leu His Ile Gly His Ala Lys  
 130 135 140  
 Ala Ala Leu Leu Asn Gln His Tyr Gln Val Asn Phe Lys Gly Lys Leu  
 145 150 155 160  
 Ile Met Arg Phe Asp Asp Thr Asn Pro Glu Lys Glu Lys Glu Asp Phe  
 165 170 175  
 Glu Lys Val Ile Leu Glu Asp Val Ala Met Leu His Ile Lys Pro Asp  
 180 185 190  
 Gln Phe Thr Tyr Thr Ser Asp His Phe Glu Thr Ile Met Lys Tyr Ala  
 195 200 205  
 Glu Lys Leu Ile Gln Glu Gly Lys Ala Tyr Val Asp Asp Thr Pro Ala  
 210 215 220  
 Glu Gln Met Lys Ala Glu Arg Glu Gln Arg Ile Glu Ser Lys His Arg  
 225 230 235 240  
 Lys Asn Pro Ile Glu Lys Asn Leu Gln Met Trp Glu Glu Met Lys Lys  
 245 250 255  
 Gly Ser Gln Phe Gly His Ser Cys Cys Leu Arg Ala Lys Ile Asp Met  
 260 265 270  
 Ser Ser Asn Asn Gly Cys Met Arg Asp Pro Thr Leu Tyr Arg Cys Lys  
 275 280 285  
 Ile Gln Pro His Pro Arg Thr Gly Asn Lys Tyr Asn Val Tyr Pro Thr  
 290 295 300  
 Tyr Asp Phe Ala Cys Pro Ile Val Asp Ser Ile Glu Gly Val Thr His  
 305 310 315 320  
 Ala Leu Arg Thr Thr Glu Tyr His Asp Arg Asp Glu Gln Phe Tyr Trp  
 325 330 335  
 Ile Ile Glu Ala Leu Gly Ile Arg Lys Pro Tyr Ile Trp Glu Tyr Ser  
 340 345 350  
 Arg Leu Asn Leu Asn Asn Thr Val Leu Ser Lys Arg Lys Leu Thr Trp  
 355 360 365

Phe	Val	Asn	Glu	Gly	Leu	Val	Asp	Gly	Trp	Asp	Asp	Pro	Arg	Phe	Pro
	370					375					380				
Thr	Val	Arg	Gly	Val	Leu	Arg	Arg	Gly	Met	Thr	Val	Glu	Gly	Leu	Lys
385					390					395					400
Gln	Phe	Ile	Ala	Ala	Gln	Gly	Ser	Ser	Arg	Ser	Val	Val	Asn	Met	Glu
				405					410					415	
Trp	Asp	Lys	Ile	Trp	Ala	Phe	Asn	Lys	Lys	Val	Ile	Asp	Pro	Val	Ala
			420					425					430		
Pro	Arg	Tyr	Val	Ala	Leu	Leu	Lys	Lys	Glu	Val	Ile	Pro	Val	Asn	Val
		435					440					445			
Pro	Glu	Ala	Gln	Glu	Glu	Met	Lys	Glu	Val	Ala	Lys	His	Pro	Lys	Asn
	450					455					460				
Pro	Glu	Val	Gly	Leu	Lys	Pro	Val	Trp	Tyr	Ser	Pro	Lys	Val	Phe	Ile
465					470					475					480
Glu	Gly	Ala	Asp	Ala	Glu	Thr	Phe	Ser	Glu	Gly	Glu	Met	Val	Thr	Phe
				485					490					495	
Ile	Asn	Trp	Gly	Asn	Leu	Asn	Ile	Thr	Lys	Ile	His	Lys	Asn	Ala	Asp
			500					505					510		
Gly	Lys	Ile	Ile	Ser	Leu	Asp	Ala	Lys	Phe	Asn	Leu	Glu	Asn	Lys	Asp
		515					520					525			
Tyr	Lys	Lys	Thr	Thr	Lys	Val	Thr	Trp	Leu	Ala	Glu	Thr	Thr	His	Ala
	530					535					540				
Leu	Pro	Ile	Pro	Val	Ile	Cys	Val	Thr	Tyr	Glu	His	Leu	Ile	Thr	Lys
545					550					555					560
Pro	Val	Leu	Gly	Lys	Asp	Glu	Asp	Phe	Lys	Gln	Tyr	Val	Asn	Lys	Asn
				565					570					575	
Ser	Lys	His	Glu	Glu	Leu	Met	Leu	Gly	Asp	Pro	Cys	Leu	Lys	Asp	Leu
			580					585					590		
Lys	Lys	Gly	Asp	Ile	Ile	Gln	Leu	Gln	Arg	Arg	Gly	Phe	Phe	Ile	Cys
		595				600						605			
Asp	Gln	Pro	Tyr	Glu	Pro	Val	Ser	Pro	Tyr	Ser	Cys	Lys	Glu	Ala	Pro
	610					615					620				
Cys	Val	Leu	Ile	Tyr	Ile	Pro	Asp	Gly	His	Thr	Lys	Glu	Met	Pro	Thr
625					630					635					640
Ser	Gly	Ser	Lys	Glu	Lys	Thr	Lys	Val	Glu	Ala	Thr	Lys	Asn	Glu	Thr
				645					650					655	
Ser	Ala	Pro	Phe	Lys	Glu	Arg	Pro	Thr	Pro	Ser	Leu	Asn	Asn	Asn	Cys
			660					665					670		
Thr	Thr	Ser	Glu	Asp	Ser	Leu	Val	Leu	Tyr	Asn	Arg	Val	Ala	Val	Gln
		675					680					685			

Gly	Asp	Val	Val	Arg	Glu	Leu	Lys	Ala	Lys	Lys	Ala	Pro	Lys	Glu	Asp	690	695	700	
Val	Asp	Ala	Ala	Val	Lys	Gln	Leu	Leu	Ser	Leu	Lys	Ala	Glu	Tyr	Lys	705	710	715	720
Glu	Lys	Thr	Gly	Gln	Glu	Tyr	Lys	Pro	Gly	Asn	Pro	Pro	Ala	Glu	Ile	725	730	735	
Gly	Gln	Asn	Ile	Ser	Ser	Asn	Ser	Ser	Ala	Ser	Ile	Leu	Glu	Ser	Lys	740	745	750	
Ser	Leu	Tyr	Asp	Glu	Val	Ala	Ala	Gln	Gly	Glu	Val	Val	Arg	Lys	Leu	755	760	765	
Lys	Ala	Glu	Lys	Ser	Pro	Lys	Ala	Lys	Ile	Asn	Glu	Ala	Val	Glu	Cys	770	775	780	
Leu	Leu	Ser	Leu	Lys	Ala	Gln	Tyr	Lys	Glu	Lys	Thr	Gly	Lys	Glu	Tyr	785	790	795	800
Ile	Pro	Gly	Gln	Pro	Pro	Leu	Ser	Gln	Ser	Ser	Asp	Ser	Ser	Pro	Thr	805	810	815	
Arg	Asn	Ser	Glu	Pro	Ala	Gly	Leu	Glu	Thr	Pro	Glu	Ala	Lys	Val	Leu	820	825	830	
Phe	Asp	Lys	Val	Ala	Ser	Gln	Gly	Glu	Val	Val	Arg	Lys	Leu	Lys	Thr	835	840	845	
Glu	Lys	Ala	Pro	Lys	Asp	Gln	Val	Asp	Ile	Ala	Val	Gln	Glu	Leu	Leu	850	855	860	
Gln	Leu	Lys	Ala	Gln	Tyr	Lys	Ser	Leu	Ile	Gly	Val	Glu	Tyr	Lys	Pro	865	870	875	880
Val	Ser	Ala	Thr	Gly	Ala	Glu	Asp	Lys	Asp	Lys	Lys	Lys	Lys	Glu	Lys	885	890	895	
Glu	Asn	Lys	Ser	Glu	Lys	Gln	Asn	Lys	Pro	Gln	Lys	Gln	Asn	Asp	Gly	900	905	910	
Gln	Arg	Lys	Asp	Pro	Ser	Lys	Asn	Gln	Gly	Gly	Gly	Leu	Ser	Ser	Ser	915	920	925	
Gly	Ala	Gly	Glu	Gly	Gln	Gly	Pro	Lys	Lys	Gln	Thr	Arg	Leu	Gly	Leu	930	935	940	
Glu	Ala	Lys	Lys	Glu	Glu	Asn	Leu	Ala	Asp	Trp	Tyr	Ser	Gln	Val	Ile	945	950	955	960
Thr	Lys	Ser	Glu	Met	Ile	Glu	Tyr	His	Asp	Ile	Ser	Gly	Cys	Tyr	Ile	965	970	975	
Leu	Arg	Pro	Trp	Ala	Tyr	Ala	Ile	Trp	Glu	Ala	Ile	Lys	Asp	Phe	Phe	980	985	990	
Asp	Ala	Glu	Ile	Lys	Lys	Leu	Gly	Val	Glu	Asn	Cys	Tyr	Phe	Pro	Met	995	1000	1005	

Phe Val Ser Gln Ser Ala Leu Glu Lys Glu Lys Thr His Val Ala Asp  
 1010 1015 1020  
 Phe Ala Pro Glu Val Ala Trp Val Thr Arg Ser Gly Lys Thr Glu Leu  
 1025 1030 1035 1040  
 Ala Glu Pro Ile Ala Ile Arg Pro Thr Ser Glu Thr Val Met Tyr Pro  
 1045 1050 1055  
 Ala Tyr Ala Lys Trp Val Gln Ser His Arg Asp Leu Pro Ile Lys Leu  
 1060 1065 1070  
 Asn Gln Trp Cys Asn Val Val Arg Trp Glu Phe Lys His Pro Gln Pro  
 1075 1080 1085  
 Phe Leu Arg Thr Arg Glu Phe Leu Trp Gln Glu Gly His Ser Ala Phe  
 1090 1095 1100  
 Ala Thr Met Glu Glu Ala Ala Glu Glu Val Leu Gln Ile Leu Asp Leu  
 1105 1110 1115 1120  
 Tyr Ala Gln Val Tyr Glu Glu Leu Leu Ala Ile Pro Val Val Lys Gly  
 1125 1130 1135  
 Arg Lys Thr Glu Lys Glu Lys Phe Ala Gly Gly Asp Tyr Thr Thr Thr  
 1140 1145 1150  
 Ile Glu Ala Phe Ile Ser Ala Ser Gly Arg Ala Ile Gln Gly Gly Thr  
 1155 1160 1165  
 Ser His His Leu Gly Gln Asn Phe Ser Lys Met Phe Glu Ile Val Phe  
 1170 1175 1180  
 Glu Asp Pro Lys Ile Pro Gly Glu Lys Gln Phe Ala Tyr Gln Asn Ser  
 1185 1190 1195 1200  
 Trp Gly Leu Thr Thr Arg Thr Ile Gly Val Met Thr Met Val His Gly  
 1205 1210 1215  
 Asp Asn Met Gly Leu Val Leu Pro Pro Arg Val Ala Cys Val Gln Val  
 1220 1225 1230  
 Val Ile Ile Pro Cys Gly Ile Thr Asn Ala Leu Ser Glu Glu Asp Lys  
 1235 1240 1245  
 Glu Ala Leu Ile Ala Lys Cys Asn Asp Tyr Arg Arg Arg Leu Leu Ser  
 1250 1255 1260  
 Val Asn Ile Arg Val Arg Ala Asp Leu Arg Asp Asn Tyr Ser Pro Gly  
 1265 1270 1275 1280  
 Trp Lys Phe Asn His Trp Glu Leu Lys Gly Val Pro Ile Arg Leu Glu  
 1285 1290 1295  
 Val Gly Pro Arg Asp Met Lys Ser Cys Gln Phe Val Ala Val Arg Arg  
 1300 1305 1310  
 Asp Thr Gly Glu Lys Leu Thr Val Ala Glu Asn Glu Ala Glu Thr Lys  
 1315 1320 1325

Leu Gln Ala Ile Leu Glu Asp Ile Gln Val Thr Leu Phe Thr Arg Ala  
 1330 1335 1340  
 Ser Glu Asp Leu Lys Thr His Met Val Val Ala Asn Thr Met Glu Asp  
 1345 1350 1355 1360  
 Phe Gln Lys Ile Leu Asp Ser Gly Lys Ile Val Gln Ile Pro Phe Cys  
 1365 1370 1375  
 Gly Glu Ile Asp Cys Glu Asp Trp Ile Lys Lys Thr Thr Ala Arg Asp  
 1380 1385 1390  
 Gln Asp Leu Glu Pro Gly Ala Pro Ser Met Gly Ala Lys Ser Leu Cys  
 1395 1400 1405  
 Ile Pro Phe Lys Pro Leu Cys Glu Leu Gln Pro Gly Ala Lys Cys Val  
 1410 1415 1420  
 Cys Gly Lys Asn Pro Ala Lys Tyr Tyr Thr Leu Phe Gly Arg Ser Tyr  
 1425 1430 1435 1440